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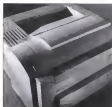
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**Abstract**

## Low-cost PC Accounting Software

[illegible]

Accounting software comes in many varieties — expensive high-end packages all the way down to inexpensive, entry-level software. In this article, I look at a number of inexpensive, entry-level programs.



*Journal of Management Education* 36(7) 809-824

**T**o be considered for this article, the software had to have a direct prior or on-site link and have a Canadian version that handled the Google and Services tax. It also had to be available and use

When evaluating software, you need to consider many things, such as: Is the installation easy to use, a good feature set, adequate documentation, good vendor support and a regular update policy? You need to ask a lot of questions and you need to find a knowledgeable sales person to answer them and this is often difficult to do.

Typical questions include: Is the installation automatic or do you have to use DOS commands to copy directories and sub-directories? Is on-screen help available? Is support available by telephone from the vendor at a reasonable cost? Is the manual easy to understand?

Even more important is using the program on a daily basis, right? Selecting meaningful functions should be simple, data entry screens must be intuitive to understand and use. The various modules should give the same interface so you only have to learn one. These measures should be helpful, and

making a very strong case for a new policy.

Basic non-purchased accounting packages include general ledgers involving accounts receivable, accounts payable and inventory. Additional modules may include payroll and management budgeting and purchasing. Deploying a program with a lot of modules is not necessarily the best solution as it may increase unnecessary complexity.

A key point to evaluate in the report-writing capabilities of the program is a statement that you get the management information you need to run your business. Look carefully at the sample reports in the manual. Also check to see if you can create custom reports from within the program. If you cannot, check to see if there is a separate report writer available or if you can export the data to a spreadsheet program.

Before you go, do not get tripped into having a buy-sell agreement form from the vendor. Incomplete form requirements vary from package to package. Sometimes forms are only available from the software vendor, sometimes only from third-party printing houses while with many of the programs you can print the forms on plain paper with a laser printer.

As part of your evaluation of an accounting package do not overlook the accounting controls. These audit trails for all transactions must exist. Passwords should be available to control entry to modules and specific files. In addition, the program should check for an unbalanced entry before postings are made and provide built-in restrictions on the deletion of accounts that involve balances.

Prior is an important consideration, but its importance is often overstated. Other costs such as set up and training can add up to several times the purchase price. Any initial cost difference will disappear in the long term. If a future conversion to a more expensive and sophisticated package is required,

You should also consider the world of Windows. Windows is an operating system meant that adds graphics to your screen and most accounting software vendors now offer Windows versions of their accounting programs. Using Windows offers advantages and disadvantages.

The major advantage is that mobile tasks are handled by clicking on little icons (instead of the mouse). This eliminates the need to learn complex GUI-conventions. The screens themselves resemble the task that you are doing. When you pay a bill you see a check (that is on the screen). When you create an invoice you fill in the data on an invoice (on your screen).

The disadvantage to the Windows environment is speed. The programs are much slower in Windows than in DOS. It also requires more sophisticated hardware. You only need a 386-level microcomputer with at least 4 MB of RAM and a 320 MB hard disk to run Windows programs. If you're using an older microcomputer that cannot do so, you can be expensive.

With that introduction is low end accounting software let us now take a look at the more popular programs available in Canada today.

### Abstract

Access to Windows runs under Windows, and you need a working knowledge of Windows as well.

Installation is straightforward and runs about the same. The manual is well written, and easy to follow. Microsoft will benefit from sections in the manual that discuss basic accounting principles and all the Plain-text Windows components. This is helpful because the screens are not as intuitive as I would like. *—Michael J. Lee*

You can select an in-house tutorial by clicking the tutorial icon. The tutorial is quite extensive, including eight lessons I worked through them very quickly and found them clear and easy to use. The comprehensive nature of the tutorial is a real

[illegible]

strength of the program. One other nice touch: you can choose whether or not to load the initial Hadoop when you first install the program. That is a welcome option because the initial loading can take up a lot of disk space, particularly since there are eight of them.

Transparencies are captured in some designs that look like paper forms. A three-sided "multiple document window" lets you view multiple forms and reports simultaneously on screen. For example, you can view a customer's credit record while you enter an invoice for that customer. Another design called "open window" lets you enter information (customer records, telephone, street) on one screen, direct or general ledger accounts on a transaction screen. You can get the same window to look up the desired code or description on a file, which can then be pasted into the transaction window.

The general ledger accommodates an unlimited number of companies, chart of accounts, and transactions. Details of financial transactions may be kept as low as penny prices as you like. You can enter budget information to produce actual versus budget reports, and reviewing journal entries are easily reviewed.

budgets, predefined charts of accounts are provided, and you can also create your own custom chart of accounts. With the accounting programs that provide predefined accounts, these charts are not supported by typical businesses, but by function of others such as 8-digit and 3-digit department codes and budget and budget-coded goods sold groupings. A sample chart of accounts is provided, but there is no built-in guard against the manual errors to be

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report samples and grouping them together in one place. There is, however, a small snag that shows samples of some reports as well as some screens. Important items are missing (DOS, Windows and Turbo) back conversions and last frame.

One of the most careful advantages of Access To Windows is its opportunity to be the full-powered, high end Windows program. Also, you can export data to spreadsheets and databases through an export utility provided with the package, data that is not important but is most for an Access format.

Forward protection is available to control access to the screen groups, and we are aware of packages that limit the use of separate modules. Backlog is left entirely up to you.

There are two particularly strong points in Access To Windows. One reports all transactions in the balance before they are recorded in the system. With the other, if you add or delete a transaction, the system automatically generates the necessary opening or adjusting journal entries. This ensures that a complete audit trail is available.

Access To Windows is a package with up column strengths and some weakness. The software environment makes it easy to use. The report feature is a strong feature and there are good controls. On the liability side, modifying the standard chart of accounts can be confusing.

The program is also available as a character-based DOS program. Also, there are multi-user versions that can be used with local area networks.

#### ACCAC Simply Accounting for Windows

ACCAC Simply Accounting for Windows is the Windows version of the long-lived Gold accounting program. Its access are easy to understand and use due to its graphical Windows-oriented.

It is an easy package to install. The manual is clearly written and you should have no trouble finding information through the table of contents and the index. A separate manual on the basics of accounting is included as well as a sample company with a complete set of practice files.

The screens are clear and easy to follow. For transaction entry, the screen shows a graphic representation of a bank book as an example, which can then be filled in with the necessary data. Customers, vendors, and items can be set up to bring up on the screen, and you can paste relevant information from these lists into the transaction entry screen.

All applications are integrated and the program operates in real time. For example, if you enter a cheque for a vendor in the payment journal, only the vendor name can be entered; there is no return. Automatic postings credit the bank account in the general ledger and debit bank the vendor account payable account and the account payable control account.

You have the choice of either setting up your chart of accounts, or using one of the expandable and modifiable ones that are provided. There include a generic chart of accounts plus specific charts for a manufacturing company, service business, retail store or construction company.

You can set up ledger accounts to control specific persons, departments or cost centers. Receipts and payments are then distributed to these accounts. Other features in the program include bill of lading.

Both a manual and a manual in printing and sample screens can be viewed and interactive programs, audit trails, and interest

charges are accommodated. You can make minor modifications to the standard screen and standard formats.

ACCAC offers entry for open invoice method (no balance forward method) for maintaining accounts payable. Periods for producing customer aging reports are specified by the user.

The open invoice method is also used for accounts payable (no balance forward method is not available) and you can customize aging periods for accounts payable (balance due date).

Inventory records are automatically updated to reflect all item purchases and

sales. Inventory prices are calculated on either a last in selling price basis, and the weighted average method of inventory costing is used. The program also has high limits inventory items that are ready for transfer due to low stock levels. This feature can be very helpful.

Reports are customizable to a certain degree within the program, but since you can export report data to spreadsheets, you can do a lot more customizing with an external editor. Important forms can be purchased from third-party suppliers.

A single chapter in the manual explains all available reports and shows samples. This

is a much better method than scanning report samples throughout various applications chapters, the method used by some of the other programs reviewed in this review. A job costing module in the package tracks expenses and costs for specific jobs. You can use ACCAC on a network, but only one workstation at a time can access the data files. Since the DOS version was available before the Windows version, DOS ACCAC also knows as best-of-kind Integrated Accounting can use these data directly with the Windows version without rekeying.

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## Accounting

Continued from page 14

ments.

Overall, it would be an excellent choice for a small business that needs accurate and timely accounting particularly in the sales and inventory area.

## Declary Accounting

Declary Accounting is a fully integrated, multiplatform package that combines ease of use, power, and low cost. It was one of the first low-cost, entry-level accounting software packages.

Installation could not be easier and takes just a few minutes. The manual is well-written and easy to follow. The approach continues all the way through the program together with clear explanations. You do not get a sample manual to practice with but a full-sized manual that contains sample transactions is available at no cost.

All modules are fully integrated but can also be used as stand-alone. The transaction-oriented workflow moves the data entry as easy to follow, and the number of transactions the system can handle are limited only by the capacity of the hardware.

Help screens are available at two levels. Help screens bring along information on any specific field selected while the help index lets you select any topic. The screen explanations are easy to follow and better explanation is provided by full-screen help screens (e.g., account numbering). When the necessary information is obtained, it can be passed into any data entry screen.

Declary offers a accessible predefined chart of accounts. Journal entry is flexible, and you can automatically enter and modify

reversing journal entries. The program has robust automatic reversal of adjusting journal entries at the close of a period and lets you keep all detailed transaction information in the files. You can also print out the data and paper transfer to any space.

The general ledger can be split into either without other modules, and this is an option very few but a feature to consider. The system has a flexible multiplatform computer that can be consolidated on the historical statements. You can also use this feature to keep track of the departments and branches of a single company. Need to calculate from the taxes? Declary does it and also gives you the power to create monthly budgeting and budget comparisons with the previous year.

Inventory can be prepared for inventory service or miscellaneous cash transactions. You can generate moving inventory without reworking, and an estimated number of sales can be calculated. Inventory pricing can accommodate quantity price breaks for different types of customers.

New customer accounts can be added directly during transaction entry, and invoice changes can be automatically generated based on items you establish. Partial payment from customers can be a problem, and when customer's ledger is applied to accounts all open invoices for a given customer are displayed on the screen. Flexible account aging is available on reports and customer check order history can be maintained.

You can use this module to create purchase orders, receive merchandise, return merchandise and post appropriate amounts to your accounts. For partially received orders, the items that were not received are

entered back to open purchase orders, thus enabling you to track back orders.

To make vendor payments easier and take advantage of available discounts, you can print a payments report that lists all open invoices by due date and discount. The Advance payments are applied to the invoice amount when the merchandise is received. Payments that are the same each month can be entered once and automatically generated thereafter.

The program supports multiple inventory costing methods such as last purchase, average cost, and standard cost. A price adjustment feature automatically processes new prices for inventory items on report. These adjustments can be a flat dollar amount or can be calculated as a percentage basis. You can also make back-to-back inventory adjustments.

Printing is flexible right to the printer, screen or a disk file. Functions on the screen display samples of all reports and gives instructions on how to print them. A full complement of forms is available from Declary and several external form vendors.

Reports can be modified with the built-in report writer. Customized reports of up to 10 columns can be generated and you can select data from the 13 accounting periods of the current year or last year. Budget figures can also be included. Manual report studies can be used with the full screen menu, both batch and on-line processing, an accounting period, and the software works with a wide variety of printers.

Reports can be exported to ASCII text or comma-delimited files that are used by many spreadsheet programs, such as Lotus 1-2-3. Declary also has built-in graphics, and is able to produce bar 3-D bar 3-D pie, bar, stacked bar and column charts. To use Declary on a local area network you need the network version of Declary, which runs as all local area networks.

Five levels of password protection are available. There is a built-in backup and restore feature and backups can be made in multiple floppy or to another sub-directory on the hard disk. You can also make a quick backup before posting. You do not need to leave the program or execute a DOS command to run the backup module.

Declary Accounting is an extremely powerful and easy-to-use program that does not place you with frustrating support. It also has on-line help facilities.

## MY D

MY D is one of the first accounting packages available for Windows. It features clear screens that are easy to navigate through

in the Windows environment and the use of a mouse.

MY D is designed for users who use new accounts, and in operation is very different from the traditional journal-oriented accounting software programs.

When you first start MY D it is a "train master center" shows a layout that chart of the functions for each menu of the program. For example, the new blocks from chart shows the logical steps of writing checks, printing checks, making cash disbursements, reconciling accounts, making a deposit, recording cash receipts, and storing cash flow. Other command controls include general ledger, sales and receivables, purchases and payables, inventory, cost and fixed administration.

It offers linked ledger accounts allows a single entry to be used to post multiple accounts. You can make the accounts payable account to the sales account for sales entry. Other fields are sales tax to sales tax payable and customer deposits to a commissioning liability account.

The manual called it a helpful and two called "Accounting Software - What Happens When You." This is followed by a series of paragraphs under 141 letters such as "Why Check, Make a Deposit" and "Record an Asset Invoice."

The general ledger control with several linked checks of accounts. You are not required to close a month before starting the next month and you can work to the next full year without doing a year-end closing. Setting up incoming entries for transactions that are done each month is done through an automatic reminder system that displays a message when the posting is due, indicating the transaction name, frequency, first two months, and due date.

MY D handles bills from and vendor invoices and you can set editing pages to give a selected point margin, present age margin, or gross profit. MY D also calculates sales taxes automatically. You can place customer orders that are not ready for immediate shipment in a pending file.

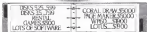
Available features include the ability to set a primary vendor when multiple vendors are available, and the designation of a buying unit of measure that can differ from the selling unit. You can automatically calculate sales tax and discounts.

MY D also has a number of handy, built-in calculator options. For instance, one requires that every payment discount is due from vendor payments on not interest and another checks vendor orders that are not ready for immediate processing.

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numerically compared with both on-hand quantities and quantities due to customers, you can also set the software quantities to show your specifications. As with the per-charge/invoice payable function, the buying end of invoice can differ from that set in sales and back order information can be maintained. You can also produce inventory control sheets for taking physical inventory.

A series of printed financial reports starts with the profit margin report, a great deal of remarkable detail, using bar charts, barcodes, electronic checks, purchase orders and mailing labels are customizable. Standard printing forms are available for purchase from the vendor.

You have a choice of sending reports to the printer, screen or disk. Those sent to disk can be fully distributed, which provides them as an export to many spreadsheet databases or word processors.

A format called card file makes a series of electronic cards containing information on the desired entry such as customers, vendors, employees or personal contacts. These cards are used to produce reports like contact logs, mailing labels, personalized letters or sales letters by customers or telephone. MYOB provides a business calendar that is used to set up and control date entries. If you have a modem on your computer, you can also run this program to automatically dial telephone numbers.

When you set up to P.O.B., agree amount amounts must be in balance before you can use the program. You can set up passwords to control access to data files. Backup of data files is handled by the program but it is not automatic, the user has to initiate the process.

As one of the best accounting packages available for the Windows environment, MYOB has an entirely different look and feel from most standard PC-based accountancy software. Unlike the usual approach, many put off those tied to traditional accounting. It works very well with the entire multi-tasks and it is intended for thinking useful features with an eye to use interface.

MYOB is a well designed program that is particularly useful for the small business person with limited accounting experience.

#### QuickBooks

QuickBooks is a true breakthrough in ease of use. While it doesn't make accounting fun for a small-business owner, it does provide an easy and painless way for them to keep the books in order.

The program is a complete small business accounting program that includes invoicing, accounts receivable, collections, accounts payable, job costing, cost forecasts and all standard point-of-sale reports.

Installation was extremely easy and took me less than five minutes. The normally daunting process of setting up the books becomes a snap with QuickBooks. With 31 well thought-out check-in accounts that cover a wide range of businesses, it is simply a case of picking the one that suits the client. Chart of account numbers are a thing of the past as QuickBooks uses simple account names.

QuickBooks offers a great deal of help to get the accounting novice up and running, with other similar features complete with sample files.

Although QuickBooks is a full featured, double-entry accounting program, a few

features the user finds more accounting jargon, there is extensive hand holding with several features help a well-organized manual and QuickBooks a comprehensive on-line tutorial that finally pops up how-to-do-it information whenever the keyboard hits the F1 key. You can adjust QuickBooks's startup time or set it to shut off after the set time experienced user.

QuickBooks communicates to the user in plain English such as, "You have checks in price, press F1." There are no screen names like "Accounts Receivable Transaction Entry" in the program. Instead the screen message will say "Write/Print Invoices."

Trans such as word and grid replace the accounting phrases, date and cycle on the entry screen. It's makes the program more likely easy to use.

If you are familiar with the Quicken program, then QuickBooks will seem like an old friend. There is the same clear and simple interface with pop-down menus accessible with mouse or even. The forms appear much like Quicken started to read to a new level with QuickBooks. The invoice entry screen looks exactly like the invoice I print. And, of course, the bill paying screen looks like a check on the screen.

In the invoicing module, you can choose

from three predefined directions for product, per location or across related businesses. These can be customized by going back to the main menu to make the changes. You have the ability to add text and calculated fields for things such as taxes and shipping charges. You can also hide and show notes on the fly, which is a nice feature when you need to remember something about a customer order.

In the accounts payable module, you can make issue checks towards a payee or enter vouchers to be paid in a future date. The entry screen looks like a checkbook register.

Continued on page 21

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## Accounting

Continued from page 18

and enter the same way. Type in the first few letters of a paper's name and the program will fill in the rest of the information already in your database. If it is not, you automatically move to the screen that lets you add a vendor. These fields cannot be avoided within each module and backspace for customers, vendors, employees, payments, taxes and shipping options. QuickBooks will even remind you that you have checks due to be paid when you turn on your computer. A nice touch.

One of the great features of QuickBooks is the automatic ability to generate invoices. All regular invoices and payments can be created once, or marked by the program, and then recalled each month with a single keystroke.

Adding information is also a snap. You can call up an invoice by typing in the invoice number and then set all the details of the transaction, including any balance due and all payments on-account.

Accountants will be interested in the fact that QuickBooks has no general ledger module. All adjusting entries are made in non-transactional transactions. Accounts can be grouped under parent accounts, which simplifies the reporting process. QuickBooks stores all data in a regular or spreadsheet format. You can view the spreadsheet scroll through each transaction or the items that it was produced. If the transaction is a check, you see the check number; the date it was paid and the amount of the check. For an invoice, you will see the amount of the invoice, how much was paid and the date it was paid.

Strong project management features is included. Every vendor and each customer must be coded with a project number. Project reports can then be generated to provide detailed information about the status and expenditure each project.

There is a complete set of 30 standard reports including profit and loss. In some form, each flow along customer flow, vendor flow and others. You can customize each of these reports with very little effort. This lets you specify parameters such as date ranges, sub-totals and what information to include. There is a Monitor feature that lets you create a custom report format for future use.

Most small business users use a cash basis and then have difficulty reporting to banks and other financial institutions on an accrual basis. QuickBooks solves this problem by providing accrual statements on both a cash and accrual basis. There is even a report that will project cash inflows and outflows and provide the cash balance for each day.

While there is no on-line database module, QuickBooks will let you create a product file with an attached selling price. However, there is no inventory tracking capability.

Initial product support is live to register users. I made two test calls to the support line and the call was answered within two minutes and the support person verified I knew the product. This provided the information I needed today.

QuickBooks sells for just \$199 US. All 1993 or 1994 compatible computers with at least 1 1/2 MB of hard disk space. 486-X recommended. DOS 6.2 or higher.

## Dynamics Accounting Gold

Dynamics Accounting Gold has become very low cost, accounting system that is extremely easy to use. It includes 7 modules: general ledger, accounts receivable, accounts payable, inventory, job costing and payroll. Installation is straightforward and takes about 5 minutes. The manual is well written and easy to follow.

The general ledger accommodates an unlimited number of transactions. A unique compression system allows you to compare the accounting data for your general ledger accounts.

There is a full set of general ledger reports including trial balance, balance sheet and income statement. The user can defer the readings to control the presentation of the data.

An inquiry screen lets you quickly look up data and a full set of reports is provided including aging statements, sub-totals, sales journal, sales journal, customer information.

Accounts receivable is fully integrated with the other modules. You can apply customer payments to the special accounts, a full general ledger of customer accounts is generated.

The accounts payable module handles an unlimited number of suppliers and tracks complete purchase and vendor information.

The inventory can handle an unlimited number of items. Costing is handled by either the standard average costing method.

The job cost module can be used independently or interfaced with the other

modules. It can track an unlimited number of jobs and costs can be accumulated by dollars or hours.

The payroll module allows for an unlimited number of employees. The program is extremely flexible and allows for the recording of bonuses, shift percentages like a wide range of overtime definitions, social benefits and tax-related items. It will print a full range of payroll reports, pay cheques and T-4 slips.

Dynamics Accounting Gold is a program with significant strengths that offers a great deal of value for its \$179 price. Its extra capabilities for very small business owners that want a full featured accounting package. ■

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### Laser Printers

Continued from page 22

however, it lacks a 300 dpi laser printer. But, when needed, allow the connection of a "token" based system to speed up the downloading of heavy files. Also, if you attach the optional NetTalk card, you have to remove the disk's local file port.

All things, we recommend that you choose another Apple Network! New that Postscript Level 2 is becoming common and Multiple Master fonts are widely supported.

will be common on PCs and Macs (largely due to Adobe's Acrobat and SupraSet products), the potential for seamless integration (using Postscript's "Printer" as a printer) even follows, so I write this. Also, and even according to reader's own apparent incompatibility between the LaserWriter 8.0 drivers and PageMaker 4.0.

Apple and Apple are handling this other with their own product release and Apple is busy distributing the LaserWriter 8.0.

## Printers at a Glance

Here's how they rated the printers.

NAME	SPR	2001/2002	PPH
<b>PC Magazine's Choice: November 1994 issue</b>			
Epson PostScript II	1000000	1000000	10
HP LaserJet II	1000000	1000000	10
HP LaserJet II	1000000	1000000	10
HP LaserJet II	1000000	1000000	10
HP LaserJet II	1000000	1000000	10
HP LaserJet II	1000000	1000000	10
HP LaserJet II	1000000	1000000	10
HP LaserJet II	1000000	1000000	10
HP LaserJet II	1000000	1000000	10
HP LaserJet II	1000000	1000000	10

### MacWorld Magazine's Bottom Line Pick: September 1994 issue

Apple LaserWriter 8.0	1000000	1000000	10
Apple LaserWriter 8.0	1000000	1000000	10
Apple LaserWriter 8.0	1000000	1000000	10
Apple LaserWriter 8.0	1000000	1000000	10
Apple LaserWriter 8.0	1000000	1000000	10
Apple LaserWriter 8.0	1000000	1000000	10
Apple LaserWriter 8.0	1000000	1000000	10
Apple LaserWriter 8.0	1000000	1000000	10
Apple LaserWriter 8.0	1000000	1000000	10
Apple LaserWriter 8.0	1000000	1000000	10

### MacWorld Magazine's Editor's Choice: June 1994 issue

LaserWriter 8.0	1000000	1000000	10
LaserWriter 8.0	1000000	1000000	10

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32MB to 2GB - \$229

32MB to 4GB - \$249

32MB to 8GB - \$269

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32MB to 32GB - \$309

32MB to 64GB - \$329

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Apple's new LaserWriter class of printers have long been popular with few vendors who appreciate Apple's easy-to-understand manuals and software installation procedures. The latest generation of LaserWriter brings 400-dpi quality, enhanced gray scales and Postscript level 2 to the Apple lineup.

Apple's PhotoGrade technology allows the LaserWriter Pro 400 and 400 to produce 11 shades of gray. (Laser III and the LaserWriter models produced about 10 shades). Additionally, the printers can only use PhotoGrade while running at 300-dpi mode.

Also, you may find that PhotoGrade requires approximately 10% more photoemulsion. Despite IT statements we've said that imply that PhotoGrade produces the output equivalent of 800 dpi, we find PhotoGrade printers to be superior to those of the LaserJet II-M, which offers HP's own resolution enhancement technology (RET) and enhanced gray scale.

Originally aimed with end, the LaserWriter Pro 400 now comes with 16MB memory, as well as Adobe PS Level 2 and HP PCL Level 4. The LaserJet II-M is a good buy at a \$1499.95 (MSRP) (this unit is not LPRC based) (models are pricing is not accurate with this model).

The only difference between Apple's LaserWriter Pro 400 and its big brother, the LaserWriter 400, is that the latter offers Ethernet, an external SCSI port as standard equipment.

The LaserWriter 400 and 400 feature simultaneously active parallel, local talk and serial ports, but can't switch seamlessly the way the HP Series 4 models and competing

models from Brother, Lanbancore, Necos, QMS and other manufacturers do. Some printers such as the QMS Lanbancore LaserWriter II and HP models support automatic switching through software installed on the user's PC, which is not as effective a solution as those that automatically switch the hardware.

**Choices Abound for Personal Lasers**

For personal use, the most popular laser-printer brands are HP, Brother, NEC, QMS, Lanbancore and Epson. Several models are priced sharply under \$1,000. Virtually all laser printers claim to be "Postscript-Ready" (though this means nothing more than the recent HP models have better resolution enhancement technology (RET) and a new postscript control language (PCL) known as Level 5. Most of the under \$1,000 printers do not offer PCL 5 or RET. HP is in a strong position at the low end of the market (see my article in the July '95 issue for more details).

As it reported in this issue, the HP LaserJet 41 (HP41) is an excellent choice for users who are looking for a low-cost laser printer with superb print quality. Although the HP LaserJet 41 prints the most pages per minute, a model (labeled the 41C) with fast page is available for only a few dollars more. Although HP is right to be on the subject of manufacturing problems, some suggest that HP will boost the speed of its LaserJet 4 and 41C printers before the end of the year and introduce another new low-cost Postscript model called the 41P.

The street price of the Epson StylusColor is around \$999. (At the same \$999, the Epson StylusColor 400, the ArtisanColor 400 does not support resolution enhancement or PCL level 5).

Continued on page 20

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**Abstract**

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ware, definitely involves getting into nitty-gritty, as long as your machine meets the recommended system requirements. If you're got an older PC, this single program may help pointing its useful bits. Though you may find performance sluggish when using a lot of windows, images or different files.

If you've got WPF 3.0 for Windows, wait for the upgrade to Windows 7 for Windows 3.0 which will incorporate many of the same functions seen here, and is expected to be released later this year.

If you are looking for Windows help, don't forget the Windows media (here that is the program for you). While in graphics mode the program is at speed-dial; it provides many of the most popular Windows functions without making the same system demands Windows requests to open. This is a great, small DOS program—probably one of the last to be made before the whole computing world turns DOS behind the same form of window-based operation.

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**HP LaserJet 4**

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However, the schoolbus if does have an option for adding Adobe Postscript, which is important if you plan on creating high-quality graphics or DTP layouts. Of course, there are some caveats: you would probably not choose a 3000-dot/inch for the first option.

**Business Credits: Higher Education**

For business unit, the question of which parties to buy becomes more complex. Reliability, compatibility, duty cycle and speed are more critical factors here than in the home.

In a recent PC Magazine printer survey, Company's PageMug 10 and PageMug 30 were named as favorites in this category, with DataFusion's LJR 1100 and 1160 receiving honorable mentions.

Allan Gillies of Harmanco, E.C. Road Product Plus, says that the 1540 (15 ppm) sold well and Compaq came out with the Paydirt series of printers (with the same Pay(Xerox) engine) which outperformed the Compaq models.

Daigeprodukt has since responded with new models: the L28 1400 and L23 2000 printers, like the earlier models, use the Page/Zero engine, but now offer up to 800-dot width.

*Journal of the American Academy of Pediatrics* that article was MIE, a ShortPulse limited to 400 characters. As the first printer to report a ShortPulse fix, again, it attracted attention from users who imagined the benefits of new offices utilizing 10 printers, having publication-quality printouts to send the "unfortunate" the limited to show not have the ability to run

off" for the Postdesign fax. (After all, that is usually) if a company has established credit standing, the fax would print it in a minute or two. However, if the other user has another PDC model for sending a Postscript fax, say, a 2-megabyte file, the printing time — and the phone bill — could be a lot longer.

**Abstract**

Long known for their dot matrix printers and notebook computers, Epson entry in the laser printer market might well be worth watching.

Clitoris: ProLase 4000 is reported to be a powerful laser pointer with advanced point laser capabilities.

The Citrine features \$6000 in savings for easy-to-install and maintenance-free with the implementation of a one-piece cartridge containing both tubes and the screen filter.

The new cartridge prints over 4,000 pages in its life cycle, more than twice the life cycle of existing toner cartridges on the market. Cost per page for the new cartridge remains competitive with other brands. The ProLine 6000 is maintenance free, as the self-contained cartridge unit requires no cleaning.

The *FreeLinx* 6000's fast warm-up time of 40 seconds means that users are up and running quickly. The internal paper tray has direct text input and legal sized paper without reformatting. The physical size is compact on the desk. Plus, the *FreeLinx* is quiet, operating at 45 dbA. Model # 6000-000000.

A new candidate in the low price market is the Eaves XLIM primer. The Eaves XLIM is only five inches wide — the size of your telephone — only 11 pounds, clear and fishy-scented.

Another interesting feature is the frequent consumer's use of LCC technology. As you know, the BMW 740i started shipping in Canada but we have focused on giving you a full experience where it does.

The Pentapartite version is expected to retail around £1,000 while the BCL version will be available for about £1,750.

The **Shutter III** is an interesting low-end package. Powered by a 34 MHz 486DX processor, this unit claims six pages per minute, 300 dpi optional PostScript emulation, all for a street price of under \$500.

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In case of upgrades, supplies and maintenance, plus choosing a printer. Despite what manufacturers would like us to believe, laser printers require regular service, and most will require a new drum after several thousand pages.

Only Keyword & Embed pages claim to serve good & clean replacement. Keyword is this lower cost-of-consumability, the Embed claim a lower cost per page (144pages) than other content, which means about 14 times

You should be sure to check that the printer you choose is specifically mentioned on the list of supported printers in your application. Printers with multiple paper sizes, resolution enhancements, and other exotic extras require software support to access these features. There are plenty of printers with high resolution, and fancy paper handling features, but no software to make them work when your application doesn't explicitly request them. ■

Thomas R. FC and MD consultant (U.S. Coast Guard CGC 22000) and Adjunct Fellow of Eastern Florida State College, Palm Bay, FL 32909 for consultation in the article.

[illegible]

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Just the styling is also what the Style Sheet Wizard in Auto Page 3.0 is all about. What lets you preview a style sheet before selecting it, ensuring that you don't have to go to the trouble of opening the style sheet and applying it.

Overall, Lotus Auto Page 3.0 gives seasoned and WordPerfect Windows users a real run for their money. It is even more impressive and professional than the company's previous Auto Page offerings and needs to be more widely documented than either of the big two. It is well worth a try.

## Microsoft Word for Windows & Bookshelf



of CD-ROM technology has allowed design

Word processing products have long offered an fast spell-checking and thesaurus tools to help writers. More recent releases have even included automatic checkers that the altered

ers of word processing products to go even further with this idea.

Microsoft's long-time leader of CD-ROM as a software distribution format, has decided to experiment with using CD-ROM to add features to its best-selling Word for Windows product. Microsoft Word for Windows is available on CD-ROM to add an encyclopedia, a dictionary, a complete thesaurus, a world atlas, a thesaurus of quotations, and a world atlas to find the topography of the world.

The company familiar with CD-ROM software products, this particular application is

Continued on page 34

## Integrated applications on the road

It is often suggested that all more integrated software packages are particularly suitable for use in mobile and laptop computers. Integrated applications (usually including word processing, spreadsheets, databases, communications, and business graphics functions) provide a single point of contact for all the data and require a great deal of memory.

Integrated applications were originally designed as the one-stop solution to most PC users' business software needs. Back in 1984, after the likes of Lotus Symphony and dBase II, the first integrated software was first released. The idea was that these would be all the software you would ever require.

While a little over-optimistic, the assessment wasn't far off the mark. Word processing, spreadsheets, databases, communications, and business graphics are indeed all the applications most people will need. And portable computers are particularly good places to have them.

### Minimal memory requirements

The way that most integrated packages have been designed provides for running in modest amounts of memory (640K or less)—loading of application functions directly into memory, thus eliminating the power-intensive requirement to access floppy or hard disk often, and working with relative ease.

This won't let you drink more when very busy, but you won't be taking up the spreadsheet, for example, after having produced a long document in the word processor. It's generally just a single keystroke to switch from one function to the next.

### Simple data exchange

In addition, integrated applications by their nature tend to require less training and are more often seen in the way that you control them (i.e., the CTRL+Z key combination always undoes a file, CTRL+U always prints and so on). This advantage goes to its other applications with the integrated packages that you might otherwise think would require too much time spent learning how to operate.

And since you have, for example, more in price with the likes of a word processor, you get a spreadsheet and database. It is often quite simple to exchange data between them.

In even the most low-cost portable computing environment, this combination of efficiency and ability to combine and exchange data between applications provides the greatest possible level of flexibility.

### Data compatibility

Finally, all the major integrated applications on offer have been on the market for some time. It is often suggested that the most popular of these (i.e., Lotus 1-2-3, Microsoft Excel, and so on) are the most widely used. This means that you can use more widely integrated applications on most the smallest notebook system and still easily migrate your data to a format which will be immediately useful to even the most knowledge-seeking PC application. ■

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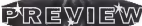
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**WORD PROCESSING**

## Low-end Word Processors

BY GREG WHITENRICH

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**The** low-end word processing market has become a hotbed of activity since the arrival of Microsoft Word. The market is still a bit of a mess, with a lot of word processors competing for attention.

Despite the number of low-cost word processing products, there is still a need for a word processor that is easy to use and can handle a wide range of applications. The IBM 2500000 is one such product.

The design of this IBM 2500000 is based on the IBM 2500000. It includes all the basic word processing features and can handle a wide range of applications.

IBM also offers an Easy Writer for Windows word processor which the company calls a "writing and editing" product. It includes all the basic word processing features of Microsoft Word, offers a number of templates, and includes a spell checker. It also includes a word count and a word list.

If you need a word processor to work with a wide range of applications, then IBM's 2500000 is a good choice.

IBM's 2500000 is a good choice for a word processor. It includes a wide range of features and can handle a wide range of applications. It is also easy to use and can handle a wide range of applications.

Corel's WordPerfect is another good choice for a word processor. It includes a wide range of features and can handle a wide range of applications. It is also easy to use and can handle a wide range of applications.

Microsoft's Word is a good choice for a word processor. It includes a wide range of features and can handle a wide range of applications. It is also easy to use and can handle a wide range of applications.

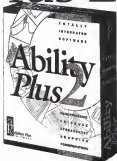
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some the 4 and 5 divisions, taking the place of the more traditional ball and rollers mechanism. Can you imagine the freedom we could have gotten by then?

Your computer keyboard should be at a comfortable height and, of course, be easy to hold to type on. Computer keyboards with sticky keys are often chosen as with "cheap" PCs. When you buy you should try one of the better brands, such as Kensington and Logitech, to see how they compare.

Apple was the first major computer manufacturer to make the high end and release a completely redesigned keyboard. While not a panacea for all types of RSI medical experts claim the Apple Keyboard Keyboard design specifically addresses only "wrist deviation" is the positive step.

Many users find that a rest and helps reduce tension strains that on the wrist and helps in keeping the wrist relatively neutral while working hours. There are many new brands — some are rigid metal and/or plastic while others are more rubber. I prefer the support of the rigid type, but a more people prefer the soft touch — too.

Wrist supports aren't just for keyboards either. The company that manufactures the first Doctor Keyboard also has recently come out with a mouse pad with a built in wrist rest called Mouse Doctor. Jacobson will license Apple's mousepad design. Apple-based mousepads. The Mouse Doctor is always looking (something like a cross between a toilet and a coffee pot) but they are helpful.

Penicillin also makes sense of the first ergonomic mousepads and that's not all. It's a 1991 model of personal workstation and is designed to be ergonomic and relatively inexpensive, and it's also a 1991 model. It's not a wonder IBM Canada (close to those Doctor Keyboard) products in its health of work computer users.

Of course, many having ergonomics don't see an ergonomic make in the accompanying photo. For example, the keyboard appears to be too high relative to the sitting position. Also the copy stand is too low from the keyboard. But only it is too low from the sitting position. But it is in front of a very high window.

Remember to take plenty of stretch breaks when your fingers, arms, legs and eyes often, keep your legs, feet and arms in a correct and comfortable position. If you need standing, there are a variety of ergonomic products that can be set to prompt you to take a break. Ergonomic Technology has a program called Exercise Break for Windows. DOS and Macintosh. It contains more than 50 exercises that pop up after a specified length of time. It can also monitor your typing and

many you if you exceed a given number of keystrokes per minute. The recommended rate, according to Exercise Break, is 144 strokes per minute or 180000000.

Ergonomics is important, yet inadequately addressed in many homes and offices. The cumulative loss of productivity, unfortunately, is made less slow up after the damage is already done.

Unfortunately, repetitive strain injuries are often difficult to claim compensation for. In a nutshell, The Computer Paper has been of numerous workers' Compensation Board decisions where RSI injury claims were denied. In several cases, the claimants are appealing — a process that can be both time-consuming and expensive. Not surprisingly, WCB officials deny that the legislation is designed to pay RSI claims, but we're open to enough claimants who have been turned down to set a pattern example. When The Computer Paper sets a day in Jan 1993, stating that WCB seemed reluctant to pay RSI claims, we received a letter explaining that the WCB officials deny that this kind of injury is covered — despite what we've been hearing from out-of-the-RSI victims.

According to Michael Woloszewski, WCB's manager of public affairs, all RSI claims are currently examined on an individual basis in order to make sure a policy is met per.

Up to date, whenever there was a direct relationship between a workplace incident and an injury that can be substantiated by medical evidence, WCB will provide compensation. However, your employer must be kept informed with WCB and be given prompt notice. Woloszewski says that the board is currently reviewing the issue of ergonomics with the aim of establishing a more strict policy.

If you are not sure whether your employer is in compliance with the WCB, you can call the ergonomics department of the WCB (in E.C., the number is 800-274-3122). You might also wish to be sure on the mailing list for more info.

And don't be shy about asking your employer to upgrade your workstation with ergonomically correct equipment. It's a lot cheaper than the alternative. ■

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comm**talk** BY JAMES MACPABLANE

## RIP Promises Graphical BBS

Word processing wasn't good enough — we wanted high-resolution pictures, imbedded sounds, self-generating charts and flying toasters.

There's no denying that graphical, object-oriented, multimedia interfaces are taking over every imaginable software application, but it seems to be common knowledge that it's behind those of us are still pecking away at an ASCII interface. That is about to change because of one application, HP's Grande Interface Protocol.

ASP is a high level script language that can generate HTML code into graphical interfaces for some machines for students. The

idea is simple: if you want to send graphics to someone you can do it in two ways. You can either send the entire image file by file or you can send the commands to draw that same image and let the remote software do the work. This takes care of the idea the remote software can draw the images as fast as the commands can be sent to the screen.

When you read up with a script that says something like “draw a green circle at  $x, y$  with a diameter of  $d$ . Then draw a white line from  $x, y$  to  $(x, y)$  then put the text *Whee* under your arcuate” at font number 1, like this:

1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, 2679, 2680, 26

It's an easy thought out that it will revolutionize the way we communicate by means. Not only does it have a powerful vector graphics engine, but it has the necessary tools to develop fully functional graphical user interfaces (GUIs).

ESP scripts (compiler, linker, etc), allowing them to replace old, custom ESP test files

arrows indicate — anything. Therefore you can add RFP graphics to almost any PDS program without any special tricks.

You create these vector files with a program called **Illustrator**. It's a vector graphics package that feels a little clunky if you're used to something like CorelDRAW® but it does the job.

ZIP has incorporated something that I've always been a champion of: downloadable images of objects used tangentially while testing. ZIP normally does this with icons. This allows the IDE to call up icons and objects (strapped objects on the user's terminal screen, without having to download them every time they're used).

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Where *GUIWindow* is, is its implementation of most interface tools from command buttons, radio buttons and other objects. You can define a button as either a typical rectangular button or as a bitmapped icon. You can define the text that appears on or under

the button, and you can also define what happens when that button is pressed — all controlled from your GUI code.

Let's say you're implementing RFP as a PCL-based font. The command to use your new font is all lowercase as follows: "R.F.P.". You can define an icon with the picture of a mailbox as it is your script and you can tell the button to read "R.F.P." to the RFP where it is placed. Other buttons can be defined in either direction as well.

Frrought up with his feelings, vice president of Infogroup, IAP's developer, on the Internet and asked him about the obviously expensive potential IAP represents to the Web world. Things might not change overnight but there are certainly actions to consider.

File Computer Report 10/10/11, 10 pages  
10/10/2011

**Why did you start NPT?**  
Jim Neugebauer: TeleGrid, Inc. was founded by four people: three programmers (myself, Jeff Kessler, and Mark Thorpe) and an administrator (Patricia Priddy). Mark and I were while working at ATT Research, a computer systems manufacturer here in Southern California. Our background was all in computers and communications.

We started the design of Biforce because we saw that many companies were doing on-line graphics but they were requiring a lot of power and time and it felt brutal—in other words, a dedicated professional solution.



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386/80 Based w/ 92MB	\$1194	
386/80 Based w/ 94MB	\$1214	
386/80 Based w/ 96MB	\$1234	
386/80 Based w/ 98MB	\$1254	
386/80 Based w/ 100MB	\$1274	
386/80 Based w/ 102MB	\$1294	
386/80 Based w/ 104MB	\$1314	
386/80 Based w/ 106MB	\$1334	
386/80 Based w/ 108MB	\$1354	
386/80 Based w/ 110MB	\$1374	
386/80 Based w/ 112MB	\$1394	
386/80 Based w/ 114MB	\$1414	
386/80 Based w/ 116MB	\$1434	
386/80 Based w/ 118MB	\$1454	
386/80 Based w/ 120MB	\$1474	
386/80 Based w/ 122MB	\$1494	
386/80 Based w/ 124MB	\$1514	
386/80 Based w/ 126MB	\$1534	
386/80 Based w/ 128MB	\$1554	
386/80 Based w/ 130MB	\$1574	
386/80 Based w/ 132MB	\$1594	
386/80 Based w/ 134MB	\$1614	
386/80 Based w/ 136MB	\$1634	
386/80 Based w/ 138MB	\$1654	
386/80 Based w/ 140MB	\$1674	
386/80 Based w/ 142MB	\$1694	
386/80 Based w/ 144MB	\$1714	
386/80 Based w/ 146MB	\$1734	
386/80 Based w/ 148MB	\$1754	
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Illustration: Margaret Murphy

lary words precede with supplementary Japanese because in every language school knows the key to knowing a language is frequent and varied exposure.

And read is certainly the word for the subject matter on the cassette. Over the past semester, I've received cards describing everything from the origin of the Japanese postmark to Japanese building customs (no smoking in the bath). On one side of each card is the English text, on the other, the Kanji text and a pronunciation guide.

I found the Power Japanese cassette equally interesting (did you know, for example, that Japanese is always pronounced exactly as written, with no silent letters or

such mistakes as *yoku* (which Chinese? Western did it before the King Power Japanese). The books are full of fascinating tidbits, too, such as how the Katakana symbols are generally reserved for the transcription of foreign or imported words. This is a convenience used to monitor the extent to which the Japanese language is "contaminated" by foreign culture.

I was also interested in its cover: how Japan's government "purged" the language of non-essential characters in the 1940s.

Apparently there used to be over 1,000,000 Chinese characters in use in Japanese, but that got to be a bit much even for native Japanese to handle, so in the 1940s, the Japanese Ministry of Education undertook to identify which Kanji characters were absolutely essential, and managed to whittle that number down to about 2,000. These 2,000 characters are the characters which the average Japanese high school student would know by the time he/she graduates.

While 2,000 different words may still seem like a lot, there are underlying patterns running through the characters, making them far easier to learn than one might think.

The books also contain info on everything from tipping in Japan to finding your way about in Tokyo. For anyone who wants to learn to learn how to read, write and speak this language, Power Japanese is a real treasure. ■

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## APPLE

## Apple Canada Rolls Out File Assistant Software for PowerBooks

Apple Canada has announced PowerBook® File Assistant™ software created specifically to help people bring their a desktop and a notebook computer to work information on both computers synchronized. The software package includes an extensive array of tools designed to address users' specific needs, including:

- file management, desktop printing and automatic archiving
- With PowerBook File Assistant, Apple's premiere computing group is building on one of bringing notebook users an array of complementary products that address needs specific to portable computing. "The Assistant" line started with the introduction in November 1991 of PowerBooks® computer, a \$249 package that includes the tools to exchange information created on popular software packages, between PowerBooks and even personal, making it possible to move 100% Windows programs and to attach Power

Books to a variety of VGA and SVGA displays, to further opportunities to support PowerBook customers with the smallest line-up recognized. Apple Canada plans to bring new packages to market.

The PowerBook File Assistant software is a sophisticated application that will automatically ensure they are both a customer's PowerBooks and desktop. Made such computer can updated when the user connects the machines. This means they can be confident that they are always looking at the most current version of their work.

For example, when a user works on a document on their PowerBook and later connects the PowerBooks to their desktop computer (or vice versa), PowerBook File Assistant looks for the same file on the desktop and updates it to include the changes the user made since last working on the desktop version.

TOORCO (248) — Sinterbus Chemical's India plant explosion in July has led to a major shortage of resin suppliers to worldwide chip makers. Hitachi and Toshiba may run out of stock if a supply can't be found. Most of the chip makers had a supply of about two weeks' worth of resin. Sinterbus Chemical's plant made 60 percent of world's high-quality epoxy resin, a sub-

stantial use in about 80 percent of the year's supply of computer chips.

Sinterbus Chemical hoped to get about half of its supply from Unibond Chemical Business. Dow already closed its resin plant in 1990, and a Dow spokesman says run-up costs for the plant would be as high as \$1 million. Indian customers Chemical guarantees to purchase the resin for the year. Dow is reluctant to do so.

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## Symantec Buys Fifth Generation

CORVALLIS, CA (ENR) — Symantec is buying again. This time it's Fifth Generation Systems, probably best known for its PC backup software product Backup. This makes the tech company a four price.

The Palo Alto Group was the third company Symantec bought, following in 1988 the purchase of Quantum, maker of the best known computer "Power Backup" Systems Management Associates, maker of PC inventory, Zurich, developer of C++, Leonard Development Company, maker of Great Works, Multitasking, the Multitasking

Group, and Corbis, maker of tools for software developers.

The trade company acquired was an exclusive, independent distributor of Symantec products in Europe, Symantec UK. Estimated cost of the acquisition is about \$5442 million or current market price. The acquisition will be successful for a week. List of interests in Symantec will include approximately 25 million shares of its common stock for the current market value, shares of Fifth Generation stock, Symantec, 10-800-444-4444.

## WP For Windows 6.0 Due Before Year-end

ORLAND, NY (ENR) — WordPerfect Corporation has announced plans to ship version 6.0 of its WordPerfect for Windows before the end of the year, putting personal computer WordPerfect and Microsoft next-and-next for the "who can get our word processing product on Windows first" award.

Both companies are now testing the new features of their respective programs. It isn't likely to be a surprise of the day of year, but it seems that the product is more than announcements of major upgrades and the

appearance of that upgrade on the shelf is getting longer and longer.

WP Corp says the suggested retail price of version 6.0 will be \$249.95. Persons can upgrade for \$125, while new copies of complete product can charge for \$149 if they original product cost at least \$149. This will meet at least a standard PC, a minimum of 4MB of memory, 25, and Windows.

WordPerfect Corporation, 800-855-4370.

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existing demo diskette to show you just how well new DB2/2 performs—right on your desktop. Call us today for your free demo, or to order DB2/2: 1-800-342-6672, or local: 1-800-445-2826. In Canada, call 1-800-965-7999 ext. 6/23. An upgrade from OS/2 Extended Edition or Extended Services is also available.



\*Microsoft's suggested retail price is \$175.

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IBM

## Seenix Redesigns the Case

Seenix Technology's popular AM 8000 PC will soon be shipped in a newly designed, dual-purpose case.

Developed by Seenix President Paul Olson, the new case can serve as either a desktop or a notebook case. Seenix is now finally making a profit on the design, which the company has designed at a cost of \$1.1 million. Seenix is now shipping the first few months.

Seenix (Seenix) is a private, externally funded company that is currently in PC engineering, research, testing and assembly at its first office in Newmarket, N.C.

Seenix Technology (800) 875-9882.

## IBM Licenses SunSelect's WABI Technology

MT — SunSelect, a unit of Sun Microsystems Inc., has signed an agreement with IBM that will result in IBM's OS/2 Systems/386 multiplatform running software modules for Microsoft Corp.'s Windows user interface.

The two companies have signed a deal that gives IBM the right to use WABI, SunSelect's software that lets Windows applications run on Unix machines on the RS/6000 line. In exchange, SunSelect is to be allowed to use certain IBM technology in enhanced IBM's hardware.

SunSelect announced WABI earlier this year. Initially the project was described as an acronym for Windows Application Binary Interface, but lately the company has stopped calling it out, reportedly because Microsoft objected to the use of the word Windows.

In a press release, IBM said it would provide further details on IBM's availability for the RS/6000 line later this year.

WABI's ability to run Windows applications on the RS/6000 line will be added in a previously announced plan to support software written for the Apple Macintosh. The result, IBM said, will be the ability to run Unix, Windows, and Macintosh applications simultaneously on the same RS/6000 system.



## Software Dev't '93 - Objects Hot, Says IBM Director

TOLEDO, OH — In the ever-fluctuating computer industry where only the best survive, opportunities for growth? According to John Seizinger, director of software development for IBM, object technology and distributed software computing hold two of the keys.

In a presentation at Software Development '93, held in Boston, Seizinger asked developers in the room for a show of hands as to how many were currently utilizing an OI-oriented development. After seeing that many of them had a yet "hugged" about the OI handwringing, he advised audience members to start getting ready now for the industry changes to come.

A recently released IDC study revealed that in the next year of participating companies, 70% "expecting an expansion in object OI" along with a strong positive relationship between use of OI and client/server installed use. In fact, Organizations are interested in these technologies as methods of downsizing applications to the desktop, he explained.

Windows are supporting this movement by developing new hardware, new interfaces, operating systems, and standards. Looking ahead, Computer professionals can assure themselves of future employment by adding to their expertise an OI and client/server technology now for ahead.

New hardware architectures such as RISC and Power PC are already extending the capabilities of PCs for use in distributed computing. In addition, Other hardware technologies such as digital signal processing (DSP) chips and microchannel transport mode (VME) networks enabling an accelerating trend.

"We as an industry have not yet provided the tools for managing distributed computing," he concluded. For this current industry landscape, presents great opportunities for computer professionals who can fill the gap.

As the time later, deployment of graphical user interfaces (GUI) is becoming more and more widespread. For many organizations, users expect that, no far as their GUIs are actually bringing a loss of productivity. "The GUIs are pretty cool but very productive." Saying stated. Similarly, computer professionals can convert their weakness to an opportunity to lead.

Windows are taking the groundwork in OI and distributed computing by establishing such standards as IBM's distributed Computing Architecture, IBM's distributed Management Environment, and CORBA (Common Object Request Broker Architecture) according to Seizinger.

In addition, smaller companies are working together on such efforts as CORBA (Common Operating System Environment), OpenDoc and Niagara, a joint effort between Apple and IBM. "What stands to large GUIs and not allow helpdesk," he explained.

Things weren't even get a foot off on their colleagues for beginning to develop for these emerging industry platforms now, he told the audience.

## TECHNOLOGY

## IBM offers stand-alone monitors, announces Pentium-based server

WATKINS, OH (OH) — IBM Canada Ltd. of Hamilton, like its U.S. parent, has begun to sell monitors that will work with personal computers from other manufacturers.

The IBM 148 (48" 148" 151" 155" and 119" color monitors), and the IBM model display monitor, were made available in

Canada in August. Suggested retail prices range from C\$649 to C\$1,699.

IBM Canada said it had about a 10.9 per cent share of the Canadian monitor market in 1992, and it expects the market to grow at 11.4 per cent through 1997.

IBM Canada also joined the price cut-

ting by announcing the ProC Server 13.140, the company's first piece of hardware based on Intel Corp.'s Pentium processor. The Server 13.140 was to be available for ordering in Canada in September. The company said

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## Interactive TV Flops in California

WASHINGTON, DC (AP) — If the pundits are watching the first Coast to the Coast on interactive television, they may doubt soon for doubting that there may already be just how far the medium is from the first full-scale test in the Los Angeles offices of Century has been a resounding flop.

A Los Angeles Times story also cited as the Washington Post reports that after a two-year trial GTE's two-way cable TV experiment had little impact on Southern California residents who had access to the service.

Newsday has spoken with several other families in Century and has learned that not only do they not have cable service, they have never even heard of the GTE experiment. Many people there just don't spend much time watching television, and even others, watching, pool and other outdoor activities seem to take up more adults' and teenagers' time.

Although this may not have been a good sample population on which to test interactive multimedia video services, the fact that only about one percent of the cable subscribers even participated in the interactive test should give pause to those other companies which are making big plans to invest in the new technology, especially since another interactive cable test in Virginia (satellite) Washington has also disappeared almost without a trace.

The service offered in Century (bunch of all those which have been legal) is having such a significant potential market, both for services, services on desktop, and for home services, and an online marketplace.

## Adobe Announces Premiere 3.0, Acrobat Reader as Single

MIDWINTER VIEW (CA) (AP) — Adobe Systems has announced the availability of version 3.0 of Adobe Premiere for the Macintosh, designed for creating digital video movies, videotapes, and multimedia presentations.

According to the company, new features in version 3.0 include better performance, 16 colors, audio tracks, video input, video output, subpicture output, and full rendering, plus a video waveform monitor, multiple framing, better digitizing and an enhanced 3D editor.

The standard floppy diskette version of Adobe Premiere 3.0 for the Macintosh is available at a suggested retail price of US\$149. The Deluxe CD-ROM Edition has a suggested retail price of US\$199.

Adobe will also offer Acrobat Reader software in its new package Adobe Acrobat Reader and to view, navigate, and print electronic documents located in Postscript (Postscript) files. The viewer was previously available only in multiple framing.

The Adobe Acrobat family of products includes Acrobat Reader, Acrobat Exchange and Acrobat Distiller.

Suggested retail price of individual packages of Acrobat Reader for both Macintosh and Windows platforms is US\$49 per copy.

Contact Adobe Systems Inc. 415-859-8667 or 415-980-0882.

## Macintosh

### Adobe Illustrator 5.0 For Macintosh Debuts

MIDWINTER VIEW (CA) (AP) — Adobe Systems has announced the availability of Adobe Illustrator version 5.0 for the Macintosh. The graphics illustration and design application is available in both floppy format and in the Deluxe CD-ROM edition.

The new version offers plug-in filters, including Adobe's Postscript (Postscript) — a set of Macintosh filters used to modify the rendering area of overlapping objects.

The new software offers a number of add-

on features, including layers, multiple views of style and color, fill in preview, custom view position and with multiple views, various page setup and support for a personal services, including page with a variety of filters.

Adobe Illustrator 5.0 for the Mac is available now for the suggested retail price of US\$149. Registered users may choose either a regular upgrade or standard diskette or the Deluxe CD-ROM Edition upgrade. Both versions include Adobe Illustrator and Adobe Type

## Macintosh (ATM) software

The regular upgrade from version 3.0 to version 5.0 will be free to registered users who purchased the Adobe Illustrator program from the Macintosh since March 11, 1989. For customers who purchased the program prior to March 11, version 5.0 costs US\$49 through October 31, 1989, and US\$99 after. The Deluxe CD-ROM Edition will be offered to registered users at the introductory price of US\$199 through October 31, 1989, and US\$249 thereafter. Contact Adobe Systems Inc. 415-859-8667.



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Internet Mac's R.C. Letter said "If you want a glimpse of what the future looks like, look no further than ClarisWorks for Windows...the convenience with which a user can move from task to task suggests a new class of 'multitasking' software."

PC Computing advised "If you're considering

an integrated Windows program this is it...all the features of other integrated packages such as Microsoft Works for Windows...look around the best and most advanced user interface we've seen in this class of program." ClarisWorks requires a mere 2MB of RAM and 5MB of hard disk.

Call for a free demo disk today. Or take advantage of our special \$125 promotional offer. Do it now. And get the best integrated work software package for Windows to work for you. Supply personal software.



"Instead of opening separate applications to create an integrated and unified look, ClarisWorks gives a single document in the Windows PC Computing, March 1989.



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# AMIGA Talk

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## ONLY AMIGA MAKES IT POSSIBLE

While there are three distinct computer platforms on the market, each with unique advantages and disadvantages over its competitors, only the AMIGA is able to produce the multiplicity of applications which is becoming commonplace in today's computing environment. A custom design integrated into parallel processor architecture and a fully extensible operating system enable software applications and program execution which on other platforms, range from problematic and costly to downright impossible.

In fact to say that the other two types of computer "don't compute"? The fact of it. They are very capable computers in their own right. Unfortunately their architecture is designed to compute in the AMIGA, and "state-of-the-art" for them usually is for or having installed some third-party code, high-tech "improvements" to the basic design and bulky software "add-ons" to make the operating system more user friendly.

"ONLY AMIGA MAKES IT POSSIBLE?" Professional, business-quality video production, including interviews, motion video applications, word processing or full featured desktop publishing, MIDI music composition, computer animation, technical illustration, image processing, all the AMIGA "electronic canvas" can perform with no external "videohooks" or other third dimensional eye-tinting and coloring, "cutting-edge" applications and accounting, MIDI to full electronic "voice" systems, desktop, programming languages, educational software and of course all disciplines of entertainment and research software.

## WITHOUT AN AMIGA IT IS NOT POSSIBLE

Desktop computers have come a long way from being glorified typewriters and calculators. The AMIGA, in particular, being designed many years after its competitors, to many software which places it upon a higher plane, applications which did not exist only a few years ago. All of this is possible only because of its custom design integrated into a parallel processing architecture, enabling a fully multitasking computer.

The myriad of computer applications available in the AMIGA comes upon at many new opportunities in the first microprocessor or spreadsheet did, almost a generation ago. However, unlike the computer "parents" of this not very distant past, given the very low cost of the AMIGA, together with the similarly low cost and great abundance of quality AMIGA software and the very short learning curve of what is without a doubt the most user friendly computer on today's market, the AMIGA owner can be up and running for profit in short order.

*Only the AMIGA is able to perform the multiplicity of applications which is becoming commonplace in today's computing environment.*

If your computing needs are geared more for personal leisure, or educational purposes, all of the same reasons make the AMIGA the computer of choice. The Amiga is a no-nonsense tool and computer in the hands of the average computer user and the average. It is intuitive, a personal very capable method making of what you want it to do. Isn't that what a modern, "state-of-the-art" computer should do?

## AMIGA COURSES AT AMSOFT

Having learned how intuitive and user friendly the AMIGA is, there is still a lot to be said for a little help and guidance. As a result, Amsoft has a fully equipped on-

site classroom for hands on instruction. Courses are offered on a variety of topics, from beginners level to advanced topics. All courses are flexible in length, and the fee is thirty dollars per course.

The following courses are currently offered at various scheduled times. Please contact Paul McCoy, the course coordinator, at Amsoft, for further information.

- |                                    |                                      |
|------------------------------------|--------------------------------------|
| • Introduction to Amiga I          | • 3D Raytracing I                    |
| • Introduction to Amiga II         | • 3D Raytracing II                   |
| • Advanced Amiga                   | • Introduction to MicroVideo I       |
| • Introduction to Desktop I        | • Introduction to MicroVideo II      |
| • Introduction to Desktop II       | • Introduction to Amiga III          |
| • Deluxe Paint I                   | • Introduction to Telecommunications |
| • Deluxe Paint II                  | • Desktop Publishing I               |
| • Introduction to Desktop Video I  | • Desktop Publishing II              |
| • Introduction to Desktop Video II |                                      |

## AMSOFT AND THE VIDEO TOASTER

Video toaster configurations vary considerably according to the user's immediate and long-term needs. At Amsoft we spend considerable time with interested customers determining the most suitable and cost effective configuration for their requirements. A essential part of this time is spent in determining the features of the Video Toaster. Each demonstration tends to be different, as each customer

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bring you 4.2 days worth of  
commercials,  
2 days of soap operas,  
and 16 hours of bad sitcoms...**

**Video Toaster 4000:  
It's payback time!  
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needs to have a different background, different content and needs and different questions. We find that the average Toaster demonstration takes an operational 15 to 30 minutes and a half. For this reason, we ask that you call ahead to arrange a mutually convenient time in order to obtain proper service.

It should be noted that accessories in the Video Toaster were listed in the preceding list of Amiga. Courses at Amsoft. The reason for this is simple individualized training is included with the sale of every Video Toaster sold at Amsoft.

  
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## The desktop publisher of the near future will be the model of a post-industrial "knowledge worker," able to create from home what until recently required the combined efforts of skilled professionals in diverse trades.

— corporate communication and marketing managers will over the next few years, limit that both internal and external publications will be predominantly process color.

To see the events of all that web coming down the pipe, the desktop publisher must begin now to become intimate with the intricacies of process color as a technology by complex subject and on the generation of output files, very tricky and unobvious.

With process color, you have to know what you're doing as you go. Risk and just costs are high, so mistakes tend to be expensive. And they stand out a mile, because the registration requirements of process color are unacceptably tight. Clients are unwilling to pay for your mistakes.

On a more positive note, remember that clients pay for more than your services, they pay for your reputation. You should be prepared to advise when and when not to use process color. You should know when to tell your client to process color later and that you should know how to convert colour information (e.g., tagged) from spot to process color when required. The knowledge of process color will add value to your service.

To add process color to all its clients to your skill set, you must educate yourself. Read the reference books (Prepress/Publishing in Colour by Michael Kleon, London: Computer Books, £22.95). Take a course if necessary. Make sure your hardware and software is up to the job. Be prepared to put in a lot of repetitive training time and be patient your way along. If you finish up an evening K22 join your employer's mail reminder your manager that you will have to devote some off-duty hours to the learning process. If you have the makings of a competent desktop publisher, all this will be as much fun as it is to learn.

While you are learning about process col-

our you will come across the second big DTP opportunity of all the file, small-system users. Simply put, it's the availability of text and graphic elements to place ready film with consideration for the rigors of the press. It takes in balancing the meaning and orientation of continuous-tone images (like photographs) and inserting the halftones into place alongside text in traditional form: this is called trapping.

Process also includes trapping the overlapping of adjacent colors to maintain the possibility of low white lines appearing between colors due to paper slightly changing shape on the press, and then to register the registration of pages onto forms for maximum page printing, and to allow for binding requirements.

Important as it is, it's too exotic for all but the most adventurous and therefore usually left to the printers. But halftoning and trapping will soon become a part of the day-to-day life of the complete desktop publisher. In this respect, it is again no computer status, you must become expert in both. Your computer must be sufficiently powerful to handle these tasks. And you must work more closely than ever with your printer and subcontractors to achieve the correct results since both functions vary with the paper used and the used.

Progress has been here for the explosive demands of specialized operations using open pre-press/instructional systems. Like the opening issues in the mid-80s, these facilities are about to stall us as we repeat them themselves. The more they overlap with existing small-system printers (using laser and PCs) and use their expertise to create computer files that don't go to their desktops depicting the suitable step in standards caused by their repeat table computers.

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## LEGRAND

COMPUTER I

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Abstract: The purpose of this study was to determine the effect of a 12-week training program on the physical and psychological health of sedentary, middle-aged women. The subjects were 20 women, aged 40-50 years, who were sedentary and had no medical problems. They were divided into two groups: a control group and an exercise group. The exercise group performed a 12-week training program consisting of three sessions per week, each lasting 30 minutes. The control group did not exercise. The results showed that the exercise group had significantly lower levels of body fat, cholesterol, and blood pressure than the control group. The exercise group also had significantly higher levels of physical fitness and psychological well-being than the control group. The results of this study suggest that a 12-week training program can improve the physical and psychological health of sedentary, middle-aged women.

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